

High thyroid radiation doses in 178 Fukushima workers

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4

By YURI OIWA/ Staff Writer

Dozens of workers received potentially cancerous doses of radiation to their thyroid glands during recovery work at the Fukushima No. 1 nuclear power plant, according to data submitted to the World Health Organization.

Tests on workers suspected of having high whole-body internal doses found 178 individuals whose thyroid glands displayed doses greater than 100 millisieverts, the generally accepted threshold for a raised risk of thyroid cancer.

The highest recorded dose was 11,800 millisieverts, a level that would give a correspondingly high probability of thyroid cancer.

Plant operator Tokyo Electric Power Co. submitted the data on thyroid tests for 522 workers—both its own staff and contractors—to the WHO upon request. The released data excluded personal details, such as the age of the individuals involved.

A forthcoming WHO report, which cites the data, says two workers had an exposure of more than 10,000 millisieverts, a level widely considered to be a lethal dose when received as full-body exposure. However, a dose of this level received in the thyroid gland alone can have an impact limited to that organ and may not cause acute symptoms.

TEPCO identified the individual whose thyroid gland received 11,800 millisieverts as being between 30 and 39 years old. It said the worker had developed no ill-health effects and remains employed, albeit in a non-nuclear job.

The individual's whole-body external and internal radiation dose was 678.8 millisieverts, the highest of all workers tested.

The WHO assessed the probability of these people developing thyroid cancer by reviewing medical records from the Hiroshima and Nagasaki atomic blasts. It calculated the risk for people in three separate age categories—aged 20, 40 or 60 at the time of exposure.

It said a 20-year-old who receives a dose of 11,800 millisieverts will be 34 times more likely to develop thyroid cancer within 15 years. The average incidence for a 20-year-old is 0.02 percent, which in this case is raised to 0.67 percent. Over the individual's entire lifetime, the rate rises from 0.21 percent to 3.8 percent.

A 40-year-old who receives such a dose will have a seven times greater risk of developing thyroid cancer within 15 years, rising from 0.05 percent to 0.36 percent. A 40-year-old's lifetime risk rises from 0.19 percent to 1.1 percent.

Twenty-year-olds who receive a smaller thyroid dose of 200 millisieverts have a 55 percent higher chance of developing cancer within 15 years, an incidence of 0.03 percent; and the individual's lifetime risk rises by almost one-third to 0.27 percent.

The data showed that of the workers tested, 163 had thyroid doses greater than 200 millisieverts.

TEPCO has not published its thyroid test results directly. The company justifies this by noting that it publishes other test results

instead.

"We are monitoring (workers') health through whole-body radiation doses," a TEPCO official said. "We have not published thyroid gland data because there are no dose limit standards, unlike whole-body data."

The company is not required to provide such data to the government. But it has also not released individual thyroid results to many of the workers employed as contractors at the disaster site.

One medical expert has argued for TEPCO to release results to all workers who took tests.

"Some epidemiological studies suggest that radiation exposure can increase the risk of thyroid cancer for people aged 40 or older, too," said Yoshio Hosoi, a professor at Hiroshima University's Research Institute for Radiation Biology and Medicine. "In addition to children, adults need to receive continued tests if their thyroid gland radiation doses are 100 millisieverts or higher."

TEPCO said it plans to offer workers thyroid gland ultrasound examinations free of charge if their whole-body radiation doses are 50 millisieverts or higher.

However, at least one expert said that may not include all people at risk.

"There is a possibility that the thyroid gland radiation dose is 100 millisieverts even if the whole-body dose is only 5 millisieverts," said Saburo Murata, deputy director of Hannan Chuo Hospital.

Murata called on TEPCO to release all past test results—and those of tests in the future.

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